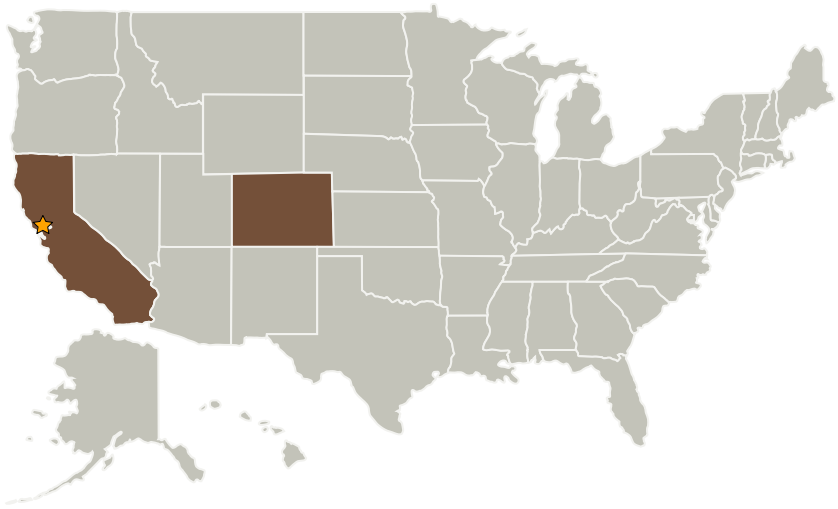
Nanostructures for Electronic and Sensing Applications, Phase I

Completed Technology Project (2004 - 2004)

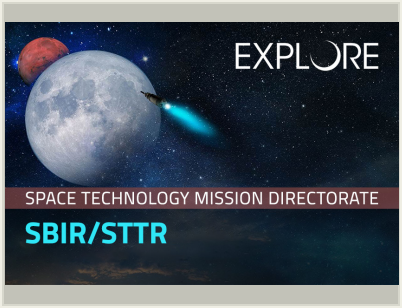
Project Introduction

The proposed project will develop sensors and electronic components from metal oxide based nanotubes and nanowires. These nanostructured materials will be grown under controlled conditions and characterized via electron microscopy in order to relate the effects of variations in growth parameters to the resulting morphology. The focus will be on the fabrication of nanotubes and nanowires with varying aspect ratios and chemical composition. Then the morphology of the nanostructures will be related to the electrical and chemical properties of the material. Finally, the results of these studies will be used to guide the preparation of improved chemiresistive sensors and varistors. Although carbon nanotubes and commercial ceramic powders with roughly spherical geometry are common, the control and exploitation of novel geometric nanostructures for improved performance in sensors and other applications is unusual. Through precise control and understanding of the material structure at the nanoscale, Synkera Technologies believes that significant gains in device performance will be achieved.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
Synkera Technologies, Inc.	Supporting Organization	Industry	Longmont, Colorado



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Primary U.S. Work Locations	
California	Colorado

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Debra J Deininger

Technology Areas

Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
  - TX12.1 Materials
    - TX12.1.6 Materials for Electrical Power Generation, Energy Storage, Power Distribution and Electrical Machines